1. (RL, JH, LG) A method for reducing regurgitation of an atrioventricular valve of a heart, comprising the steps of:

securing an apparatus to an exterior wall segment of a heart, said apparatus having a compression member in contact with said exterior wall segment of the heart; and

displacing said compression member, thereby moving said exterior wall segment inward and toward the center line of the ventricular cavity of the heart so as to normalize papillary muscle geometry and improve leaflet coaptation.

2. (RL, JH,LG)The method of claim 1, wherein the displacing step further comprises the step of:

inflating the apparatus, wherein the apparatus further includes an inflatable reservoir disposed between the compression member and a buttressing portion.

3. (RL, JH,LG)The method of claim 2, wherein the displacing step further comprises the step of:

deflating the apparatus.

4. (RL, JH,LG)The method of claim 3, wherein the displacing step further comprises the step of:

temporally coordinating the inflating and deflating steps with electrical activation of the heart.

5. (RL, JH,LG)The method of claim 3, wherein the displacing step further comprises the step of:

pumping an inflation fluid between said inflatable reservoir and a supply reservoir.

6. (RL, JH,LG)The method of claim 3, wherein the displacing step further comprises the step of:

pumping an inflation gel between said inflatable reservoir and a supply reservoir.

7. (RL, JH,LG)The method of claim 1, wherein the displacing step further comprises the step of:

adjustably and intermittently inflating and deflating the apparatus over an extended period of time, wherein the apparatus further includes an inflatable reservoir disposed between the compression member and a buttressing portion.

8. (RL, JH,LG)The method of claim 1, wherein the securing step further comprises the step of:

suturing said apparatus to the exterior wall of the heart beneath a top layer of the pericardium surrounding the heart.

9. (RL, JH,LG)The method of claim 1, wherein the securing step further comprises the step of:

suturing said apparatus to the exterior wall of the heart, attached to the pericardium surrounding the heart..

10. (RL, JH,LG)The method of claim 1, wherein the securing step further comprises the step of:

guiding the placement of the apparatus with echocardiographic imaging.

11. (RL, JH, LG)The method of claim 1, wherein the displacing step further comprises the step of:

guiding the displacement of said compression member based upon leaflet coaptation as observed by echocardiographic imaging.

12. (RL, JH,LG) The method of claim 1, further comprising the step of:

constructing said apparatus to have a contour based upon data collected through echocardiographic imaging.

13. (RL, JH,LG) The method of claim 1, wherein the displacing step further comprises the step of:

filling said apparatus with a stuffing material, wherein said apparatus further includes a fillable region disposed between the compression member and a buttressing portion.

14. (RL, JH,LG) The method of claim 13, wherein the stuffing material includes engineered tissue.

15. (RL, JH,LG) The method of claim 14, wherein the engineered tissue provides a stiffening force in the fillable region.

16. (RL, JH,LG) The method of claim 13, wherein the displacing step further comprises:

electrically triggering the engineered tissue to contract in temporal coordination with electrical activation of the heart, said engineered tissue including artificial muscle composed of conducting polymers.

17. (RL, JH,LG) The method of claim 13, wherein:

at least one portion of the apparatus is biodegradable; and

the engineered tissue serves to move said exterior wall segment inward and toward the center line of the ventricular cavity of the heart so as to normalize papillary muscle geometry and improve leaflet coaptation.

18. (RL, JH,LG) The method of claim 13, wherein said fillable region includes a scaffold structure for receiving said stuffing material.

19. (RL, JH,LG) The method of claim 1, wherein the exterior wall segment comprises a deformed section of the exterior wall.

20. (RL, JH,LG) The method of claim 1, wherein the securing step comprises an invasive cardiac procedure.

21. (RL, JH,LG) The method of claim 1, wherein the securing step comprises a minimally invasive or thoracoscopic procedure introducing viewing and operating instruments and devices through one or more small openings and elongated tubular structures inserted through the chest wall.

22. (RL, JH,LG) The method of claim 1, further comprising the steps of:

furling the apparatus;

delivering the apparatus to a location proximate the exterior wall segment; and

unfurling the apparatus at said location.

23. (RL, JH,LG) The method of claim 1, further comprising the step of:

repeating the securing and displacing steps at a different exterior wall segment of the heart.

24. (RL, JH,LG) The method of claim 23, wherein said different exterior wall segment is on the other side of the heart.

25. (RL, JH,LG) The method of claim 1, wherein the displacing step serves to reduce mitral annulus size.

26. (RL, JH, LG) An apparatus for reducing regurgitation of an atrioventricular valve of a heart, comprising:

a compression member adapted to contact an exterior wall segment of a heart;

a displacement mechanism for moving said compression member inward and toward the center line of the ventricular cavity of the heart so as to normalize papillary muscle geometry and thereby improve leaflet coaptation; and

means for securing the compression member to the exterior wall of the heart.

27. (RL, JH,LG) The apparatus of claim 26, wherein the displacement mechanism comprises:

a buttressing portion; and

an inflatable reservoir disposed between said buttressing portion and said compression member such that inflation of the inflatable reservoir with an inflation material moves said compression member inward and toward the center line of the ventricular cavity of the heart.

28. (RL, JH,LG) The apparatus of claim 27, wherein the buttressing portion comprises a patch.

29. (RL, JH,LG) The apparatus of claim 28, further comprising a suturable ring encircling said patch.

30. (RL, JH,LG) The apparatus of claim 27, further comprising:

another inflatable reservoir disposed between said buttressing portion and another compression member such that inflation of the another inflatable reservoir with an inflation material moves the another compression member inward and toward the center line of the ventricular cavity of the heart.

31. (RL, JH,LG) The apparatus of claim 27, wherein the buttressing portion resists outward expansion of the inflatable reservoir.

32. (RL, JH,LG) The apparatus of claim 27, wherein the inflatable reservoir includes an access port through which the reservoir is inflatable.

33. (RL, JH,LG) The apparatus of claim 32, wherein said access port is implanted within the chest wall beneath the skin.

34. (RL, JH,LG) The apparatus of claim 32, wherein said access port is implanted within the chest wall within a pouch beneath the skin.

35. (RL, JH,LG) The apparatus of claim 32, wherein the access port permits deflation of the reservoir.

36. (RL, JH,LG) The apparatus of claim 32, wherein the access port is composed in part of a self-sealing material.

37. (RL, JH,LG) The apparatus of claim 32, wherein the access port is lockable through heat treating.

38. (RL, JH,LG) The apparatus of claim 27, further comprising:

an inflation material supply; and

a pump in communication with said reservoir and said inflation material supply, wherein said pump operates to inflate and deflate said reservoir.

39. (RL, JH,LG) The apparatus of claim 38, wherein said pump operates in temporal coordination with electrical activation of the heart.

40. (RL, JH,LG) The apparatus of claim 38, wherein said pump operates in response to an electrical trigger.

41. (RL, JH,LG) The apparatus of claim 38, wherein said pump is secured in the vicinity of the chest wall or abdomen.

42. (RL, JH,LG) The apparatus of claim 27, wherein said inflation material comprises a fluid.

43. (RL, JH,LG) The apparatus of claim 27, wherein said inflation material comprises a gel.

44. (RL, JH,LG) The apparatus of claim 26, wherein the compression member has a contour design related to the contour of the exterior wall segment.

45. (RL, JH,LG) The apparatus of claim 26, wherein the displacement mechanism comprises:

a buttressing portion; and

a fillable region disposed between said buttressing portion and said compression member such that filling of the fillable region with a stuffing material moves said compression member inward and towards the center line of the ventricular cavity of the heart.

46. (RL, JH,LG) The apparatus of claim 45, wherein the stuffing material includes engineered cells.

47. (RL, JH,LG) The apparatus of claim 46, wherein the engineered cells provide a stiffening force in the fillable region.

48. (RL, JH,LG) The apparatus of claim 45, wherein the stuffing material includes artificial muscle composed of conducting polymers that are electrically triggered to contract in temporal coordination with electrical activation of the heart.

49. (RL, JH,LG) The apparatus of claim 46, wherein:

at least a portion of the apparatus is biodegradable; and

the engineered cells serve to move said exterior wall segment inward and towards the center line of the ventricular cavity of the heart.

50. (RL, JH,LG) The apparatus of claim 45, wherein said fillable region contains a structure for receiving said stuffing material.

51. (RL, JH,LG) The apparatus of claim 26, wherein:

said compression member comprises a structure including engineered cells; and

said displacement mechanism comprises a deforming force provided by said structure.

52. (RL, JH,LG) The apparatus of claim 26, wherein:

said compression member comprises a structure including conducting polymers; and

said displacement mechanism comprises electrical triggers for said conducting polymers.

53. (RL, JH,LG) The apparatus of claim 45, wherein said stuffing material comprises a curable polymer.

54. (RL, JH,LG) The apparatus of claim 26, wherein said apparatus is furlable.

55. (RL, JH,LG) A method for reducing regurgitation of an atrioventricular valve of a heart, comprising the steps of:

securing an apparatus to an exterior wall segment of a heart, said apparatus having an indented compression member in contact with said exterior wall segment of the heart, so as to move said exterior wall segment inward and toward the center line of the ventricular cavity of the heart so as to normalize papillary muscle geometry and improve leaflet coaptation.

56. (RL, JH,LG) The method of claim 55, wherein the securing step serves to reduce mitral annulus size.

58. (RL, JH,LG) The method of claim 56, wherein the adjusting step further comprises the step of:

guiding the displacement of said compression member based upon leaflet coaptation as observed by echocardiographic imaging.

59. (RL, JH,LG) The method of claim 55, wherein the securing step further comprises the step of:

suturing said apparatus to the exterior wall segment of the heart beneath a top layer of the pericardium surrounding the heart.

60. (RL, JH,LG) The method of claim 55, wherein the securing step further comprises the step of:

suturing said apparatus to the exterior wall of the heart, attached to the pericardium surrounding the heart.

61. (RL, JH,LG) The method of claim 55, wherein the securing step further comprises the step of:

guiding the placement of the apparatus with echocardiographic imaging

62. (RL, JH,LG) The method of claim 55, further comprising the step of:

constructing said apparatus to have a contour based upon data collected through echocardiographic imaging

63. (RL, JH,LG) The method of claim 55, wherein the exterior wall segment comprises a deformed section of the exterior wall.

64. (RL, JH,LG) The method of claim 55, wherein the securing step comprises an invasive cardiac procedure.

65. (RL, JH,LG) The method of claim 55, wherein the securing step comprises a thoracoscopic procedure.

66. (RL, JH,LG) The method of claim 55, further comprising the steps of:

furling the apparatus;

delivering the apparatus to a location proximate the exterior wall segment; and

unfurling the apparatus at said location.

67. (RL, JH,LG) The method of claim 55, further comprising the step of:

repeating the securing and displacing steps at a different exterior wall segment of the heart.

68. (RL, JH,LG) The method of claim 67, wherein said different exterior wall segment is on the other side of the heart.

69. (RL, JH,LG) An apparatus for reducing regurgitation of an atrioventricular valve of a heart, comprising:

an indented compression member adapted to contact an exterior wall segment of a heart so as to move said exterior wall segment inward and toward the center line of the ventricular cavity of the heart so as to normalize papillary muscle geometry and improve leaflet coaptation; and

means for securing the compression member to the exterior wall of the heart.

70. (RL, JH,LG) The apparatus of claim 69, further comprising means for adjusting said apparatus to change the degree of movement of said exterior wall segment.

71. (RL, JH,LG) The apparatus of clam 69, wherein the compression member has a contour related to the contour of said exterior wall segment.

72. (RL, JH,LG) The apparatus of claim 69, wherein the apparatus is furlable.

73. (RL, JH,LG) A method of reversing cardiac remodeling, comprising the steps of:

securing an apparatus to an exterior wall segment of a heart, said apparatus including a compression member in contact with said exterior wall segment of the heart; and

actively displacing said compression member so as to cyclically move said exterior wall segment inward and toward the center line of the ventricular cavity, thereby normalizing cardiac geometry.

74. (RL, JH,LG) The method of claim 73, wherein the actively displacing step further comprises the steps of:

inflating the apparatus, wherein the apparatus further includes an inflatable reservoir disposed between the compression member and a buttressing portion; and

deflating the apparatus.

75. (RL, JH,LG) The method of claim 74, wherein the actively displacing step further comprises the step of:

temporally coordinating the inflating and deflating steps with electrical activation of the heart.

76. (RL, JH,LG) The method of claim 74, wherein the actively displacing step further comprises the step of:

pumping an inflation fluid between said inflatable reservoir and a supply reservoir.

77. (RL, JH,LG) The method of claim 74, wherein the actively displacing step further comprises the step of:

pumping an inflation gel between said inflatable reservoir and a supply reservoir.

78. (RL, JH,LG) The method of claim 73, wherein the securing step further comprises the step of:

suturing said apparatus to the exterior wall of the heart beneath a top layer of the pericardium surrounding the heart.

79. (RL, JH,LG) The method of claim 73, wherein the securing step further comprises the step of:

suturing said apparatus to the exterior wall of the heart, attached to the pericardium surrounding the heart..

80. (RL, JH,LG)The method of claim 73, wherein the securing step further comprises the step of:

guiding the placement of the apparatus with echocardiographic imaging.

81. (RL, JH,LG) The method of claim 73, wherein the actively displacing step further comprises the step of:

guiding the displacement of said compression member based upon leaflet coaptation as observed by echocardiographic imaging.

82. (RL, JH,LG) The method of claim 73, further comprising the step of:

constructing said apparatus to have a contour based upon data collected through echocardiographic imaging.

83. (RL, JH,LG) The method of claim 73, wherein the actively displacing step further comprises the step of:

filling said apparatus with an engineered tissue including artificial muscle composed of conducting polymers, wherein said apparatus further includes a fillable region adjacent said exterior wall segment; and

electrically triggering said engineered tissue material to contract in temporal coordination with electrical activation of the heart.

84. (RL, JH,LG) The method of claim 83, wherein at least one portion of the apparatus is biodegradable.

85. (RL, JH,LG) The method of claim 83, wherein said fillable region includes a scaffold structure for receiving said engineered tissue.

86. (RL, JH,LG) The method of claim 73, wherein the exterior wall segment comprises a deformed section of the exterior wall.

87. (RL, JH,LG) The method of claim 73, wherein the securing step comprises an invasive cardiac procedure.

88. (RL, JH,LG) The method of claim 73, wherein the securing step comprises a thoracoscopic procedure.

89. (RL, JH,LG) The method of claim 73, further comprising the steps of:

furling the apparatus;

delivering the apparatus to a location proximate the exterior wall segment; and

unfurling the apparatus at said location.

90. (RL, JH,LG) The method of claim 73, further comprising the step of:

repeating the securing and actively displacing steps at a different exterior wall segment of the heart.

91. (RL, JH,LG) The method of claim 90, wherein said different exterior wall segment is on the other side of the heart.

92. (RL, JH,LG) An apparatus for reversing cardiac remodeling, comprising:

a compression member adapted to contact an exterior wall segment of a heart;

an active displacement mechanism for cyclically moving said compression member inward and toward the center line of the ventricular cavity of the heart so as to normalize cardiac geometry; and

means for securing the compression member to the exterior wall segment of the heart.

93. (RL, JH,LG) The apparatus of claim 92, wherein the active displacement mechanism comprises:

a buttressing portion;

an inflatable reservoir disposed between said buttressing portion and said compression member such that inflation of the inflatable reservoir with an inflation material moves said compression member inward and toward the center line of the ventricular cavity of the heart;

an inflation material supply; and

a pump in communication with said reservoir and said inflation material supply, wherein said pump operates to inflate and deflate said reservoir.

94. (RL, JH,LG) The apparatus of claim 93, wherein the buttressing portion comprises a patch.

95. (RL, JH,LG) The apparatus of claim 93, wherein the buttressing portion resists outward expansion of the inflatable reservoir.

96. (RL, JH,LG) The apparatus of claim 94, wherein the inflatable reservoir includes an access port through which adjustments to the reservoir may be made.

97. (RL, JH,LG) The apparatus of claim 93, wherein said access port is securable within the chest wall beneath the skin.

98. (RL, JH,LG) The apparatus of claim 93, wherein said access port is securable within the chest wall within a pouch beneath the skin.

99. (RL, JH,LG) The apparatus of claim 93, wherein the access port is composed in part of a self-sealing material.

100. (RL, JH,LG) The apparatus of claim 93, wherein the access port is lockable through heat treating.

101. (RL, JH,LG) The apparatus of claim 93, wherein said pump operates in temporal coordination with electrical activation of the heart.

102. (RL, JH,LG) The apparatus of claim 93, wherein said pump is secured in the vicinity of the chest wall or abdomen.

103. (RL, JH,LG)The apparatus of claim 93, wherein said inflation material comprises a fluid.

104. (RL, JH,LG) The apparatus of claim 93, wherein said inflation material comprises a gel.

105. (RL, JH,LG) The apparatus of claim 92, wherein the compression member has a contour design related to the contour of the exterior wall segment.

106. (RL, JH,LG) The apparatus of claim 92, wherein the active displacement mechanism comprises:

a buttressing portion;

a fillable region disposed between said buttressing portion and said compression member including artificial muscle composed of conducting polymers that are electrically triggerable to contract in temporal coordination with electrical activation of the heart.

107. (RL, JH,LG) The apparatus of claim 106, wherein at least a portion of the apparatus is biodegradable.

108. (RL, JH,LG) The apparatus of claim 106, wherein said fillable region contains a structure for receiving said conducting polymers.

109. (RL, JH,LG) The apparatus of claim 106, wherein said apparatus is furlable.

110. (RL, JH,LG) A method of reversing cardiac remodeling, comprising the steps of:

securing an apparatus to an external wall segment of a heart, said apparatus including a compression member in contact with said exterior wall segment of the heart, a buttressing portion, and a region between said compression member and said buttressing portion within which is disposed a stiffening material, such that said compression member is displaced so as to move said exterior wall segment inward and toward the center line of the ventricular cavity, thereby normalizing cardiac geometry.

111. (RL, JH,LG) The method of claim 110, wherein the securing step serves to reduce mitral annulus size.

112. (RL, JH,LG) The method of claim 110, wherein the stiffening material comprises engineered cellular material.

113. (RL, JH,LG) The method of claim 112, wherein the cellular material converts to bone over time.

114. (RL, JH,LG) The method of claim 112, wherein the cellular material converts to cartilage over time.

115. (RL, JH,LG) The method of claim 112, wherein the cellular material is disposed upon a scaffold structure.

116. (RL, JH,LG) The method of claim 112, wherein at least a portion of the apparatus is biodegradable, and the cellular material serves to move said exterior wall segment inward and toward the center line of the ventricular cavity, thereby normalizing cardiac geometry

117. (RL, JH,LG) The method of claim 110, wherein the securing step comprises an invasive cardiac procedure.

118. (RL, JH,LG) The method of claim 110, wherein the securing step comprises a thoracoscopic procedure.

119. (RL, JH,LG) The method of claim 110, further comprising the steps of:

furling the apparatus;

delivering the apparatus to a location proximate the exterior wall segment; and

unfurling the apparatus at said location.

120. (RL, JH,LG) The method of claim 110, further comprising the step of:

repeating the securing step at a different exterior wall segment of the heart.

121. (RL, JH,LG) The method of claim 120, wherein said different exterior wall segment is on the other side of the heart.

122. (RL, JH,LG,GV) A method of reversing cardiac remodeling, comprising the step of:

delivering a material into a region of tissue of the heart so as to displace a portion of the region of tissue inward and toward the center line of the ventricular cavity, thereby normalizing cardiac geometry

123. (RL, JH,LG,GV) A method for reducing regurgitation of an atrioventricular valve of a heart, comprising the steps of:

delivering a material into a muscle wall region of a heart proximate the papillary muscle, said material displacing a portion of said muscle wall region inward and toward the center line of the ventricular cavity of the heart so as to normalize papillary muscle geometry and improve leaflet coaptation.

124. (RL, JH,LG,GV)The method of claims 122 or 123, wherein the delivering step further comprises the step of injecting the material.

125. (RL, JH,LG) The method of claims 122 or 123, wherein the muscle wall region comprises the tissue plane between the coronary sinus and mitral annulus in the heart.

126. (RL, JH,LG) The method of claims 122 or 123, wherein the muscle wall region comprises a portion of the base of the heart.

127. (RL, JH,LG, GV) The method of claims 122 or 123, wherein the muscle wall region includes damaged tissue.

128. (RL, JH,LG, GV) The method of claims 122 or 123, wherein the delivering step further includes the step of:

imaging the muscle wall region with ultrasound.

129. (RL, JH,LG, GV) The method of claims 122 or 123, wherein the material retains a predetermined shape and volume after delivery.

130. (RL, JH,LG, GV) The method of claims 122 or 123, wherein the material comprises a nickel titanium alloy.

131. (RL, JH,LG, GV) The method of claims 122 or 123, wherein the material comprises a hydrogel that stiffens near body temperature.

132. (RL, JH,LG, GV) The method of claims 122 or 123, wherein the material is encapsulated in a structure.

133. (RL, JH,LG,GV) The method of claim 132, wherein the structure is a balloon.

134. (RL, JH,LG,GV) The method of claim 132, wherein the structure is a cellular matrix comprised of fibroblasts.

135. (RL, JH,LG,GV) The method of claims 122 or 123, wherein the material is engineered cellular

tissue.

136. (RL, JH,LG,GV) The method of claim 135, wherein the cellular tissue is delivered with a biodegradable scaffolding network.

137. (RL, JH,LG,GV) The method of claim 135, wherein the cellular tissue comprises stem cells programmed to transform into a cartilaginous or bony structure.

138. (RL, JH,LG,GV) The method of claim 135, wherein the cellular tissue comprises myocytes producing dynamic contraction in temporal coordination with electrical activation of the heart.

139. (RL, JH,LG) The method of claims 122 or 123, wherein the material comprises conductive polymers, and the material displaces the portion of the muscle wall region by contracting in response to electrical triggering.

140. (RL, JH,LG,GV) The method of claims 122 or 123, wherein the delivering step comprises an invasive cardiac procedure.

141. (RL, JH,LG,GV) The method of claims 122 or 123, wherein the delivering step comprises a thoracoscopic procedure.

142. (RL, JH,LG) The method of claims 122 or 123, wherein the delivering step serves to reduce mitral annulus size.

143. (RL, JH,LG,GV) The method of claims 122 or 123, further comprising the step of: repeating the delivering step at a different muscle wall region of the heart.